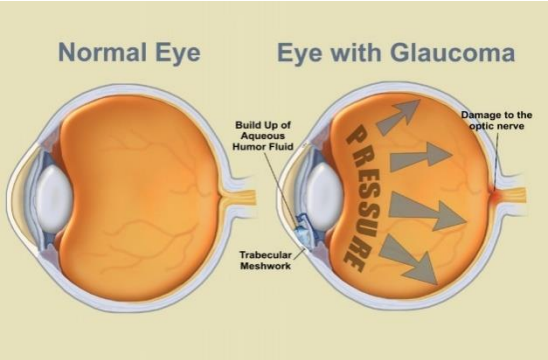
Glaucoma



Glaucoma is a disease of the eye in which fluid pressure within the eye rises - if left untreated, the patient may lose vision and even become blind. The disease usually affects both eyes, although one may be more severely affected than the other.

There is a small space in the front of the eye called the anterior chamber. Clear liquid flows in and out of the anterior chamber, this fluid nourishes and bathes nearby tissues. If a patient has glaucoma, the fluid drains too slowly out of the eye. This leads to fluid build-up, and pressure inside the eye rises. Unless this pressure is brought down and controlled, the optic nerve and other parts of the eye may become damaged, leading to loss of vision.

Fast facts on glaucoma:

- Glaucoma has been called the silent thief of sight.
- The main types of glaucoma are open-angle and closed-angle.
- Age and thyroid problems increase the risk of glaucoma.
- Symptoms can include severe eye pain.
- Treatment includes surgery and medications.

Types of glaucoma

There are two main types: open-angle and closed-angle glaucoma.

Closed-angle glaucoma (acute angle-closure glaucoma)

This can come on suddenly; the patient commonly experiences pain and rapid vision loss. Fortunately, the symptoms of pain and discomfort make the sufferer seek medical help, resulting in prompt treatment, which usually prevents any permanent damage from occurring.

Primary open-angle glaucoma (chronic glaucoma)

This type progresses very slowly. The patient may not feel any symptoms; even slight loss of vision may go unnoticed. In this type of glaucoma, many people do not get medical help until permanent damage has already occurred.

Low-tension glaucoma

This is a rare form of glaucoma that experts do not fully understand. Even though eye pressure is normal, optic nerve damage still occurs. It might be due to reduced blood supply to the optic nerve.

Pigmentary glaucoma

This is a type of open angle glaucoma and typically develops during early or middle adulthood. Pigment cells, which arise from the iris, are dispersed within the eye. If these cells build up in the channels that drain fluid from the eye, they can upset the normal flow of fluids in the eye, leading to a rise in eye pressure.

Causes of glaucoma

Experts are unsure of the precise causes of glaucoma, but cases are divided into two categories:

- **Primary glaucoma** - this means that the cause is unknown.
- **Secondary glaucoma** - the condition has a known cause, such as a tumor, diabetes, an advanced cataract, or inflammation.

There are several risk factors for glaucoma:

- Old age.
- Ethnic background - East Asians, African Americans, and those of Hispanic descent have a higher risk of developing glaucoma, compared with Caucasians.
- Some illnesses and conditions - like diabetes or hypothyroidism.
- Eye injuries or conditions.
- Eye surgery.
- Myopia (nearsightedness).

Corticosteroids

Patients on long-term corticosteroids have a raised risk of developing several different conditions, including glaucoma. The risk is even greater with eye drops containing corticosteroids.

What are the symptoms of glaucoma?

The signs and symptoms of primary open-angle glaucoma and acute angle-closure glaucoma are quite different:

Symptoms of primary open-angle glaucoma

- Peripheral vision is gradually lost. This nearly always affects both eyes.

- In advanced stages, the patient has tunnel vision.

Symptoms of closed angle glaucoma

- Eye pain, usually severe.
- Blurred vision.
- Eye pain is often accompanied by nausea and sometimes vomiting.
- Lights appear to have extra halo-like glows around them.
- Red eyes.
- Sudden, unexpected vision problems, especially when lighting is poor.

Treatments for glaucoma

Treatments involve either improving the flow of fluid from the eye, reducing its production, or both:

Eyedrops for glaucoma

Eyedrops are a common and effective treatment for glaucoma.

In the majority of cases, initial treatment for glaucoma includes eye drops. Compliance is vital for best results and to prevent undesirable side effects - this means following the doctor's instructions carefully.
Examples of eyedrops include:

- prostaglandin analogues
- carbonic anhydrase inhibitors
- cholinergic agents
- beta blockers

Side effects of eyedrops can include stinging, redness, eyelash growth, change in eye color and occasionally retinal detachments and difficulty breathing. If eyedrops are not effective enough, the doctor may prescribe an oral carbonic anhydrase inhibitor.
Side effects are less if they are taken during meals. Initial side effects can include tingling in the fingers and toes and frequent urination - however, after a few days, they usually resolve.
Much less commonly, there is a risk of rashes, kidney stones, stomach ache, weight loss, impotence, fatigue, and a strange taste when consuming fizzy drinks.

Surgery for glaucoma

If drugs don't work, or if the patient cannot tolerate them, surgical intervention may be an option. The aim of surgery is usually to bring down the pressure inside the eye. Examples of surgery include:

- **Trabeculoplasty** - a laser beam is used to unblock clogged drainage canals, making it easier for the fluid inside the eye to drain out.
- **Filtering surgery (viscocanalostomy)** - this may be carried out if nothing else works, including laser surgery. Channels within the eye are opened up to improve fluid drainage.
- **Drainage implant (aqueous shunt implant)** - this option is sometimes used for children or those with secondary glaucoma. A small silicone tube is inserted into the eye to help it drain out fluids better.

Acute angle-closure glaucoma

Acute angle-closure glaucoma is treated as a medical emergency. Pressure-reducing medications are administered immediately. A laser procedure is usually carried out that creates a tiny hole in the iris, allowing fluids to pass into the trabecular meshwork (the drainage system of the eye) - this procedure is called an iridotomy.

Even if only one eye is affected, the doctor may decide to treat both, because this type of glaucoma often affects the other eye, too.